NAVSEA
STANDARD ITEM

FY-17

ITEM NO: 009-43
DATE: ***30 JUL 2015***
CATEGORY: II

1. SCOPE:

1.1 Title: Engineering Plant Production Completion Date (PCD), Light-Off Assessment (LOA) Support; provide

2. REFERENCES:

2.1 Standard Items

2.2 S9095-AD-TRQ-010 Total Ship Test Program Manual

3. REQUIREMENTS:

3.1 Complete all work in the engineering spaces prior to PCD. For availabilities in excess of 120 days (140 days for forward deployed CVNs), PCD will be scheduled 14 days prior to the LOA. For availabilities 120 days or less (140 days for forward deployed CVNs), PCD will be scheduled between 4-14 days prior to engineering plant light-off. PCD will not be less than 4 days prior to engineering plant light-off regardless of whether a LOA is scheduled. For availabilities 120 days and less (140 days for forward deployed CVNs), the requirement for a LOA will be determined by the TYCOM.

3.1.1 The term complete is defined to mean the accomplishment of all contractor-responsible work, testing, and certification that is possible without lighting off boilers, gas turbine engines, or main propulsion diesels (as applicable). Steam shall not be introduced into propulsion systems from any source until after a successful LOA.

3.1.2 All work required to conduct engineering plant light-off regardless of whether an LOA is scheduled shall be assigned to be completed to meet the Engineering Plant PCD Key Event using 009-60 and 009-67 of 2.1. All work is defined as any work planned for accomplishment during the maintenance availability by all organizations other than Ship's Force including: Alteration Installation Team (AIT), Commercial Industrial Services (CIS), and Fleet Maintenance Activity (FMA).

3.1.3 The Engineering Plant PCD key event can only be called met after all required reports and OQE have been submitted to, reviewed and approved by the SUPERVISOR. In order to meet the PCD Key Event, the minimum equipment listed in Attachment A must be ready for start-up in its normal configuration, and ready for testing per applicable test requirements. The following work shall be completed to declare the PCD met:

3.1.3.1 Complete work to the degree such that no workers are required to occupy the affected spaces for any reason. The affected spaces are defined as those spaces or compartments in which workers must enter to accomplish work. This includes not only the spaces where work is being accomplished, but also adjacent spaces where fire watches or other workers must be present to complete work. The degree required for the completion of work in associated spaces includes filling of lube oil, fuel oil, and feedwater tanks, cleaning and gas freeing of all bilge spaces to "Safe for Workers" conditions, final paint, decking, lagging or any other repair work which requires workers to be in the space to complete. Spaces are required to be operationally ready for all systems listed in Attachment A and subsequent sustained engineering plant operations, including completion of support systems test procedures or applicable portions thereof so that the equipment is operating within design parameters. Additionally, full, unimpeded access to all engineering spaces, escape trunks, access doors, scuttles, repair lockers and firefighting equipment is required without exception. The selected tests to be conducted prior to PCD shall be identified in the Integrated Test Schedule managed by the Lead Maintenance Activity (LMA) Chief Test Engineer as defined in 009-67 of 2.1.

3.1.3.2 Repair and installation of machinery, equipment, blowers, piping systems, gages, thermometers, meters, operating instructions and warning plates, protective guards, flange shields, remote shutdown devices, strainer shields, valves and hand wheels, insulation and lagging, check valves, steam traps and orifices, regulators and reducing valves, remote operating gear and pull cables, valve reach rods, pipe hangers and braces, valve locking devices, valve position indicators, indicators, gage lines, label plates, relief valves and hand lifting levers, boiler safety valves and easing gear, boiler uptakes and stacks, fuel burner drip pans, boiler combustion monitoring system, boiler igniter system, automatic boiler control system, main feed pump control system, deck plates, sight glasses and guards, fuel strainers, soot blowers, boiler casings, firefighting systems and equipment, handrails, ladders, access doors and scuttles, ventilation systems, supply and exhaust vent screens, lighting systems (incandescent, fluorescent, and emergency battle lanterns), electric cables and runs, cable straps, cable packing, cable tags, alarm systems, ground straps, flex hoses, resilient mounts, safety devices, stenciling, interior communication systems, access closures, tachometers, and resiliently-mounted pipe hangers.

3.1.3.3 Calibration of gages, thermometers, tachometers, pyrometers, and meters.

3.1.3.4 Cold setting of relief valves, governors for steam turbine, gas turbine or diesel engines (as applicable), over-speed trips, piping spring hangers, regulators and reducing valves, low suction trips, high temperature alarms and switches, high and low pressure control switches, low lube oil pressure alarms, ship service boiler water high and low level alarms, main boiler water high and low level alarms, and waste heat boiler water high and low level alarms.

3.1.4 Proposed exceptions shall be submitted to the SUPERVISOR in writing in accordance with 009-01 of 2.1. Proposed exceptions shall include a methodical plan for completion of work that does not interrupt activities planned during LOA or activities during non-LOA hours planned by Ship's Force for training (see 4.5). In the event of incomplete work, an evaluation by the ship's Commanding Officer, SUPERVISOR and LMA must be performed to determine if that work will impede uninterrupted preparations and accomplishment of LOA. Exceptions must be approved by the SUPERVISOR and agreed to in writing by the Ship's Commanding Officer.

3.1.5 Hold a dedicated PCD progress meeting no later than 2 weeks prior to PCD and get positive concurrence (by name) from all entities involved in the availability that all work tied to PCD is on schedule. Submit in writing to the SUPERVISOR a list of any work items with anticipated completion delays. These work items must be tracked daily thereafter and the status thereof discussed during daily production meetings until adequate solutions are identified to complete the work on its original schedule date or on a new date as agreed upon by the SUPERVISOR and Ship's Force. In all cases, do not wait for meetings to convene to inform the SUPERVISOR that work tied to PCD may not be completed and certified on time. Immediate notification is required.

3.1.6 Correct contractor-responsible discrepancies discovered during preliminary LOA inspections prior to the turnover of engineering spaces to Ship's Force. Reserve the 2-week period prior to LOA for Ship's Force preparations for LOA. Do not allow contractor work in engineering spaces during this period unless approved by the Ship's Commanding Officer and specifically authorized by the SUPERVISOR.

3.1.7 After the PCD progress meeting required in 3.1.5, submit to the SUPERVISOR, a daily status report on contractor-responsible preliminary LOA discrepancies. Additionally, notify the SUPERVISOR verbally, immediately upon determination of any discrepancies that cannot be corrected prior to the scheduled LOA, and provide in writing the reason and expected completion date. Propose exceptions in accordance with the process required in 3.1.4.

3.2 Provide the services of a contractor quick response team during the LOA to correct Government discrepancies.

3.2.1 Coordinate the correction of discrepancies as they are discovered.

3.2.2 Ensure that quick response team members have with them (or readily accessible), the tools of their trade for immediate use in the correction of discrepancies.

4. NOTES:

4.1 Definitions.

4.1.1 Engineering Plant Production Completion Date (PCD): Key Event scheduled prior to propulsion plant hot operations to document that all

production work effecting the minimum equipment requirements for Light-Off Assessment (LOA) is completed and certified up through Stage 2 testing per 2.2. Stage 2 testing is accomplished prior to operation of installed or relocated equipment, cabling, piping, ventilation, etc., to ensure that each installation has been accomplished in accordance with established plans and specifications. PCD includes all required reports and Objective Quality Evidence (OQE) have been submitted to, reviewed and approved by the SUPERVISOR. The SUPERVISOR and Lead Maintenance Activity (LMA) are responsible for thorough and rigorous management of this Key Event and minimizing exceptions. In the event of incomplete work, an evaluation by the Ship's Commanding Officer, SUPERVISOR and TYCOM must be performed to determine if the incomplete work will impede uninterrupted preparations and accomplishment of LOA. Exceptions must be approved by the SUPERVISOR and agreed with in writing by the Ship's Commanding Officer. PCD is scheduled to provide the crew sufficient time to prepare and train for LOA, and to shift from a maintenance environment to an operations environment.

4.2 The LOA is a comprehensive assessment of the ship in the key areas of: The level of knowledge and firefighting capability of engineering plant personnel; the adequacy of Engineering Department administrative programs and procedures; the material readiness of the engineering plant; and the state of cleanliness and preservation of main engineering and auxiliary machinery spaces. The LOA will be accomplished by the Immediate Superior in Command (ISIC), Afloat Training Group (ATG) or the Type Commander Staff. The assessment will be conducted and concluded immediately prior to Main Propulsion Systems light-off. The material assessment portion usually takes less than 12 hours. If restrictive discrepancies are identified, those discrepancies must be corrected prior to Main Propulsion Systems light-off.

4.3 The SUPERVISOR will establish an inspection team and accomplish a preliminary LOA inspection in conjunction with Ship's Force 4 to 8 weeks prior to the LOA to determine and record discrepancies which would impact uninterrupted completion of LOA. The pre-LOA will be about 4 days in duration and will result in the identification of discrepancies and incomplete work considered necessary to support a successful LOA. Each discrepancy noted in the inspection will be described in simple terms on a 4-part, serialized form. The form will identify the general location of the discrepancy and the associated work Item number, if applicable. The fourth copy of the form, made of hard card with an attachment wire, will be hung by the SUPERVISOR'S inspection team in the immediate proximity of the discrepancy (on the deficient item itself, when practical). Upon completion of the pre-LOA the SUPERVISOR will identify contractor-responsible discrepancies to the contractor. Deficient items identified that are the responsibility of the Government will be screened for accomplishment by the Ship's Force. That portion of this work that cannot be accomplished by the Ship's Force will be considered for accomplishment by the contractor.

4.3.1 Any time after completion of the pre-LOA inspection that additional discrepancies are discovered, they will be similarly identified and screened.

4.4 It is never anticipated or expected that exceptions to the completion of work are an acceptable practice and in no case should exceptions happen at a rate that indicates a trend. The process for handling exceptions is only included in this NSI in the event unforeseen circumstances prevent work from being accomplished on time.

4.5 An example of an acceptable plan for work completion is as follows: Unfinished work on piping in an engineering main space that requires 2 days (beyond PCD) of hot work, painting and lagging to complete. Work shall be planned for and accomplished during the hours of the day that the space isn't occupied for activities related to LOA. However, all tools, materials, hoses, lines, workers, and equipment must be cleared from the space and all interference removals reinstalled no later than one hour prior to commencement of the next LOA event taking place in that space. The space must pass safety walk-through requirements as determined by Ship's Force and the SUPERVISOR.

ATTACHMENT A
CLASS SPECIFIC MINIMUM EQUIPMENT LISTS

Equipment	CG	DDG	FFG	LCS-1	LCS-2
B2B/VHF	1	1	1	1	1
C&M Console	-	-	-	1 of 1	-
TSCE	-	-	-	1 of 1	1 of 1
Fire Pumps	3 of 6	3 of 6	3 of 5	2 of 3	2 of 3
SCBA Charging Stations	2 of 3	FLT I: 2 of 3; 79 AF: 1 of 2	2 of 3	1 of 1	1 of 1
SCBA ABPA	2 of 2	2 of 2 (FLT I)	2 of 2	-	-
SCBA EBAC	2 of 3	2 of 3	2 of 3	1 of 1	1 of 1
SCBA	50 of 55 (90%)	66 of 73 (90%)	50 of 55 (90%)	33 of 36 (90%)	33 of 76
P100	2 of 3	2 of 4	2 of 3	2 of 3	1 of 2
Hull integrity	Yes	Yes	Yes	Yes	Yes
AFFF Stations	1 of 2	1of 2	1 of 2	1 of 2	2 of 3
Bilge Sprinkling	MMR/AMR	MMR/AMR	MMR/AMR	MMR/AMR	MMR/AMR
Watermist	-	-	-	100%	2 of 2, each operational main space
Halon (Main Spaces)	100%	100%	100%	-	-
Fixed CO2/Halon/HFP for GTE/GTG Modules	100%	100%	100%	100%	100%
Main Drainage Capability (defined as the ability to dewater a main space locally, or using that space's educator remotely, or cross-connected from a directly adjacent space)	Yes	Yes	Yes	Yes	Yes
Shafts	2 of 2	2 of 2	1 of 1	2 of 2	2 of 4
Engines	1 of 2 per shaft	1 of 2 per shaft	2 of 2	1 of 2 per shaft	2 of 4
S/W Serv Pumps (ASW)	2 of 3	3 of 5	1 of 2	3 of 5	2 of 3
F/O Serv Pumps	1 of 2 per MMR	1 of 2 per MMR	1 of 2	1 of 2 diesel 2 of 2 GTM	1 of 2
L/O Serv Pumps, per shaft	1 of 2 (A, B) and attached	1 of 2 (A, B) and attached	1 of 2 (A, B) and Coast Down Pump	4 of 4 electric and attached	2 of 2 electric and attached, 1 of 1 thrust bearing pump
CRP/CPP pumps elec	2 of 2	2 of 2	1 of 1	-	-
F/O Xfer Pumps	1 of 2	1 of 2	1 of 2	1 of 2	1 of 2
F/O purifiers	1 of 2	1 of 2	1 of 2	1 of 2	1 of 2 (filter separators)

Consoles	3 of 7 CCS, 1 of 3 each MER	3 of 3 CCS 2 of 2 CCS (Fwd/Backfit) 1 of 1 MER 4 of 7 TAC 4 4 of 7 RSCs (Fwd/Backfit)	4 of 4 CCS 1 of 1 MER	2 of 2 (CCS/RCO)	ECS at minimum of 2 consoles
NAVLAN svrs with aux & prop loops functioning	-	-	-	1 of 2	-
MPCMS PLCs	-	-	-	1 of 2	-
All I/O boxes	-	-	-	Yes	-
ECS/SFCS (100% Bullnose functionality)	-	-	-	-	1 of 1
Generators	2 of 3	2 of 3	2 of 4 with 1 of 2 SACs	2 of 4	2 of 4
SFCs (400hz)	2 of 4	1 of 2	2 of 3	1 of 1	2 of 2
HPACs	1 of 2	1 of 2 (FLT I)	1 of 2	-	-
MPAC	-	-	-	1 of 2	1 of 2
LPACs	2 of 3	2 of 3	1 of 2	-	-
HPU fwd	-	-	-	-	1 of 1
HPU Aft	-	-	-	-	1 of 2
A/C	2 of 4	2 of 4 (51-90) 2 of 5 (91 AF)	2 of 3	1 of 2	2 of 3
CHT sys operational	Yes	Yes	Yes	Yes	Yes
Oily Waste sys operational (must be able to process or hold oily waste onboard)	Yes	Yes	Yes	Yes	Yes
Waste Heat Boilers (Pre-MOD)	1 of 3	-	-	-	-
Hot water tanks/heaters	1 of 2	1 of 1	1 of 1	1 of 2	1 of 2
Evap/RO units	1 of 2	1 of 2	1 of 2	1 of 2	2 of 3
Splitter Gear L/O scavenging pumps	-	-	-	1 of 2 per gear	-
Auxiliary Propulsion Unit			1 of 2		
Steering Units or Steerable Waterjets	1 of 2 per rudder	1 of 2 per rudder	2 of 2	2 of 2	2 of 4 waterjets with 1 of 2 electric and 1 attached hydraulic/ lubricating oil pumps per jet
Rudder	1 of 2	1 of 2	1 of 1	-	0 of 2
Canman Waterjet Control System	-	-	-	1 of 1	-
Surface radars	1 of 2	1 of 2	1 of 2	1 of 2	1 of 2
Gyro	1 of 2	1 of 2	1 of 2	1 of 2	1 of 2
Gyro Repeaters (Helm, Bridge Centerline, Aft Steering	1 each	1 each	1 each	1 each	1 each
Fathometer	1	1	1	1	1
Military GPS, NAVSSI, or plug in	1	1	1	1	1

Rudder indicators (Helm, Aft Steering)	2 of 3	2 of 3	2 of 3	-	-
Radar Display (Bridge, CIC)	1 each	1 each	1 each	-	-
Internal Comms (IVCS or Sound Powered Phones)	Yes	Yes	Yes	Yes	Yes
Meet COLREGS	Yes	Yes	Yes	Yes	Yes
ECDIS-N (for ECDIS-N ships)	Yes	Yes	-	-	-
Voyage Management System/BME-VMS/ARPA	-	-	-	2 of 3	1 of 2
Ship Control Consoles	Yes	Yes	Yes	Yes (IBS)	4 of 5
Navigation Data Conv Unit/NDC	-	-	-	1 of 1	1 of 1
Anchor Windlass	1 of 2	1 of 1	1 of 1	1 of 1	1 of 1
Anchors	1 of 2	1 of 2	1 of 1	1 of 1	1 of 1
Reefers	1 of 2	1 of 2	1 of 2	2 of 3 freezers 1 of 2 chill boxes	1 of 2
Pot Wtr Pumps (and associated priming pump if applicable)	1 of 2	1 of 2	1 of 2	1 of 2	1 of 2
Hot Water Circ Pumps	1 of 2	1 of 2	1 of 2	1 of 2	1 of 2

Equipment	LHA	LHD-1	LHD-8	LPD-4	LPD-17	LSD	MCM	PC	LCC
B2B/VHF	1	1	1	1	1	1	1	1	1
Fire Pumps	6 of 12	6 of 12	8 of 16	3 of 5	5 of 10	3 of 5 (41-48) 4 of 7 (49-52)	2 of 3	2 of 3	2 of 4
SCBA Charging Stations	3 of 5	3 of 5	3 of 5	3 of 5	2 of 3	2 of 3	-	-	1 of 3
SCBA ABPA	2 of 3	2 of 3	2 of 3	2 of 3	-	2 of 2	-	-	1 of 3
SCBA EBAC	3 of 6	3 of 6	3 of 6	2 of 3	2 of 3	2 of 3	1 of 1	1 of 1	1 of 3
SCBA	115 of 144 (80%)	222 of 278 (80%)	228 of 285 (80%)	65 of 72 (90%)	153 of 191 (80%)	105 of 116 (90%)	21 of 24 (90%)	9 of 10 (90%)	246 of 308 (80%)
P100	2 of 3	3 of 5	2 of 3	2 of 4	2 of 4	2 of 4	1 of 2	1 of 1	3 of 5
Hull integrity	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AFFF Stations	3 of 6	3 of 6	3 of 6	2 of 4	4 of 7	2 of 4	1 of 2	in-line eductors, bilge sprinkling entry fire stations	1 of 2
Bilge Sprinkling	MMR/ AMR	MMR/ AMR/ 1 & 2 Diesel Rooms	MMR/ AMR/ 1 & 2 Diesel Rooms	MMR	MMR/ AMR	MMR/ AMR	Yes	Yes, as applicable	Yes
Watermist	-	-	MMR/ Diesel Enclosure/ 1 & 2 Diesel Rooms	-	2 of 2	-	-	-	-
Halon (Main Spaces)	100%	100%	100%	100%	-	100%	100%	100%	100%
Fixed CO2/Halon/HFP for GT/GTG Modules	-	-	1 & 2 GTE Enclosure (HFP)	-	100%	-	-	-	-
Main Drainage Capability ***(defined as the ability to dewater a main space locally, or using that space's educator remotely, or cross-connected from a directly***	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Shafts	2 of 2	2 of 2	2 of 2	2 of 2	2 of 2	2 of 2	2 of 2	2 of 4	1 of 1
Engines	2 of 2	2 of 2	2 of 2	2 of 2	1 of 2 per shaft	1 of 2 per shaft	1 of 2 per shaft	Support 2 shafts	1 of 1
Boilers	2 of 2	2 of 2	-	2 of 2	-	1 of 2, aux (if applic)	-	-	2 of 2
DFT	2 of 2	2 of 2	-	2 of 2	-	-	-	-	1 of 1
FDB per MMR	1 of 2	1 of 2	-	2 of 2	-	-	-	-	4 of 4
MFP/Emerg FP per MMR	2 of 3	2 of 3	-	2 of 3	-	-	-	-	2 of 3
ME Gland Exhaust Fans per MMR	2 of 2	2 of 2	-	2 of 2	-	-	-	-	1 of 1
MFBP per MMR	1 of 2	1 of 2	-	2 of 2	-	-	-	-	3 of 3
Main Condensate Pumps per MMR	1 of 2	1 of 2	-	2 of 2	-	-	-	-	1 of 2
Main Condenser Sea Water Circulating Pumps per MMR	1 of 1	1 of 1	-	1 of 1	-	-	-	-	1 of 1
MPDE L/O Pumps	-	-	-	-	2 of 4	-	-	-	-
S/W Serv Pumps (ASW)	-	-	2 of 2	-	3 of 6	2 of 4	1 of 2	-	-
L/O Serv Pumps per MMR	2 of 3: ALOP, A or B	2 of 3: ALOP, A or B	2 of 3: A or B, and Coast-down	2 of 3: ALOP, A or B	2 of 3: ALOP, A or B	2 of 3: ALOP, A, or B	2 of 2: ALOP or STBY	-	1 of 1 electric
Gearbox Trailing pump	-	-	1 of 2	-	-	-	-	2 of 4	-

CRP/CPP pumps elec	-	-	2 of 4	-	2 of 2	2 of 2	2 of 2	-	-
F/O Xfer Pumps	1 of 2	1 of 2	1 of 2	2 of 2	1 of 2	1 of 2	1 FOTP or FOP	1	2 of 4
F/O purifiers	-		1 of 2	-	1 of 2	1 of 2	1 FOP or FOTP	-	-
Consoles	Local Control	Local Control	2 of 4 in CCS	Local Ctrl	3 of 5 in CCS	2 of 4 (if appl)	-	-	-
Multi-Function Work Station (MFWS)	-	-	4 of 7	-	-	-	-	-	-
Eng System Control /Ship's WAN (ESC/SWAN)					Yes	Yes (if appl)			
Generators	2 of 4	3 of 5	4 of 6	2 of 4	3 of 5	2 of 4	2 of 3	2 of 2	
Emergency Generators	1 of 2	1 of 2	-	1 of 2	-	-	-	-	1 of 2
Fwd EPCP	1 of 1	1 of 1	-	1 of 1	-	1 of 1	-	-	-
Aft EPCP	1 of 1	-	-	-	-	-	-	-	-
SFCs (400hz)	2 of 3	3 of 5	3 of 5	1 of 2	1 of 3	2 of 3	1 of 2	1	2 of 2
HPACs	2 of 3	1 of 2	1 of 2	-	-	1 of 2	-	-	1 of 2
MPAC	-	-	-	-	1 of 2	-	1 of 2	-	-
LPACs	3 of 5	3 of 5	3 of 5	2 of 2	2 of 3	2 of 3	-	-	2 of 4
A/C	3 of 6	3 of 6	4 of 7	2 of 4	4 of 7	2 of 4 or 3 of 5/6	1 of 2	2 of 2 or 2 of 4	4 of 6
CHT sys operational	Yes	Yes	Yes	Yes	Yes	Yes	-	Yes	Yes
Oily Waste sys operational (must be able to process or hold oily waste onboard)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Evap/RO units	1 of 2	1 of 2	2 of 4	1 of 2	2 of 3	1 of 2	1 of 2	1 of 2	1 of 2
Steering Units or Steerable Waterjets	1 of 2 per rudder	1 of 2 per rudder	1 of 2 per rudder	2 of 2	2 of 2	2 of 2	2 of 2	2 of 2	1 of 1
Rudder	1 of 2	1 of 2	1 of 2	1 of 2	1 of 2	1 of 2	1 of 2	1 of 2	1 of 2
Surface radars	1	1	1	1	1 of 1	1 of 2	1	1	1 of 2
Gyro	1 of 2	1 of 2	1 of 2	1	1 of 1	1 of 1	1 of 2	1	1 of 2
Gyro Repeaters (Helm, Bridge Centerline, Aft Steering)	1 each	1 each	1 each	1 each	1 each	1 each	1 each	Bridge, Aft Steering	1 each
Fathometer	1	1	1	1	1	1	1	1	1

Military GPS, NAVSSI, or plug in	1	1	1	1	1	1	1	1	1
Rudder indicators (Helm, Aft Strg)	1 each	1 each	1 each	1 each	1 each	1 each	1 each	1 each	1 each
Radar Display (Bridge, CIC)	1 each	1 each	1 each	1 each	-	1 each	1	-	1 each
Internal Comms (IVCS or Sound Powered Phones)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Meet COLREGS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ECDIS-N (for ECDIS-N ships)	1	1	-	-	1	1	1	-	
Ship Control Consoles	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Anchor Windlass	1 of 2	1 of 2	1 of 2	1 of 2	1 of 2	1 of 2	1 of 1	1 of 1	1 of 2
Anchors	1 of 2	1 of 2	1 of 2	1 of 2	1 of 2	1 of 2	1 of 1	1 of 1	1 of 2
Reefers	1 of 3	1 of 3	1 of 3	1 of 2	1 of 2	1 of 2	1 of 2	1 of 1	1 of 2
Pot Wtr Pumps	2 of 4	2 of 4	2 of 4	1 of 2	2 of 4	1 of 2	1 of 2	1 of 2	2 of 4
Pot Wtr Booster Pumps	1 of 2	1 of 2	-	1 of 2	-	-	-	-	-